Arizona Drought Monitor Report *December 2006*

Produced by the Monitoring Technical Committee

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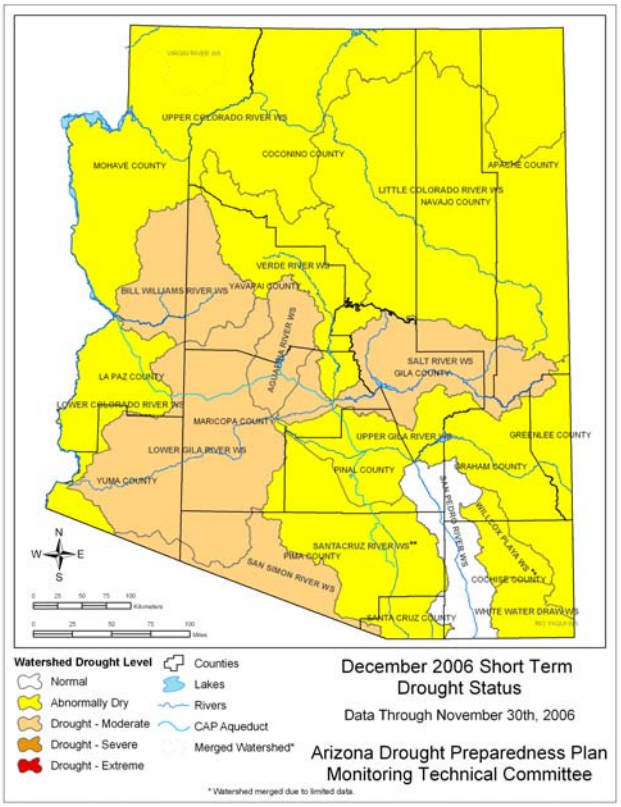
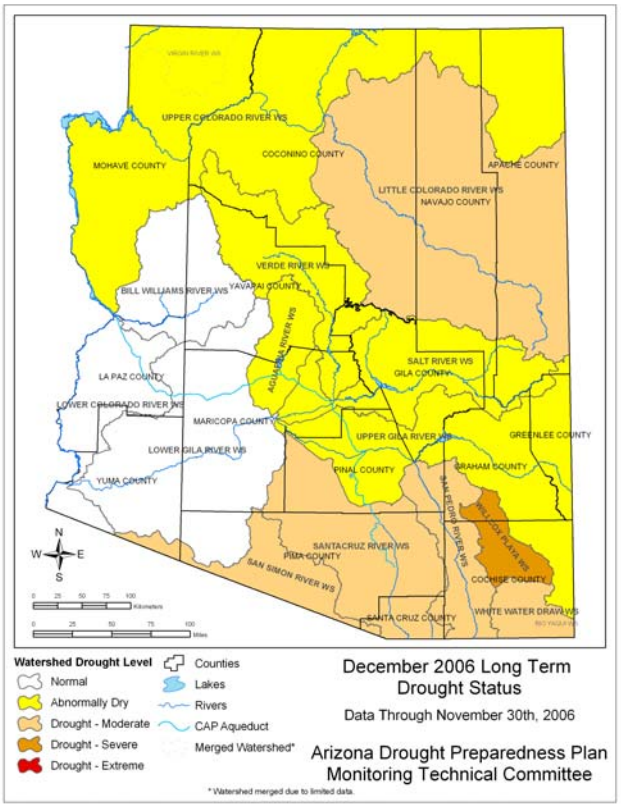
ARIZONA DEPARTMENT OF WATER RESOURCES



Short-term Drought Status

The short-term drought status changed significantly in the past month, partly due to a seasonal shift in precipitation regimes. November was extremely dry everywhere in the state, and the past three months have been well below-average except on the Upper and Lower Colorado, San Pedro and Whitewater Draw basins. This switch from the wet monsoon has degraded the status of the central and southwest basins to moderate drought, while the fall precipitation has improved the Upper Colorado basin to abnormally dry. As the winter wet season begins, both the short and long-term drought outlooks are expected to improve, particularly in the higher elevation basins.



Long-term Drought Status

The long-term drought situation shows improvement in the south central watersheds, improving Santa Cruz and San Simon from severe to moderate drought. Willcox Playa is the only watershed remaining in the severe category. The long-term takes into account the previous 24-, 36- and 48-month precipitation periods, as well as the streamflow. Although the precipitation and streamflow percentiles indicate Willcox Playa and White Water Draw have improved since the November update, feedback from the local impacts groups shows that upgrading those watersheds is not warranted by the field conditions.

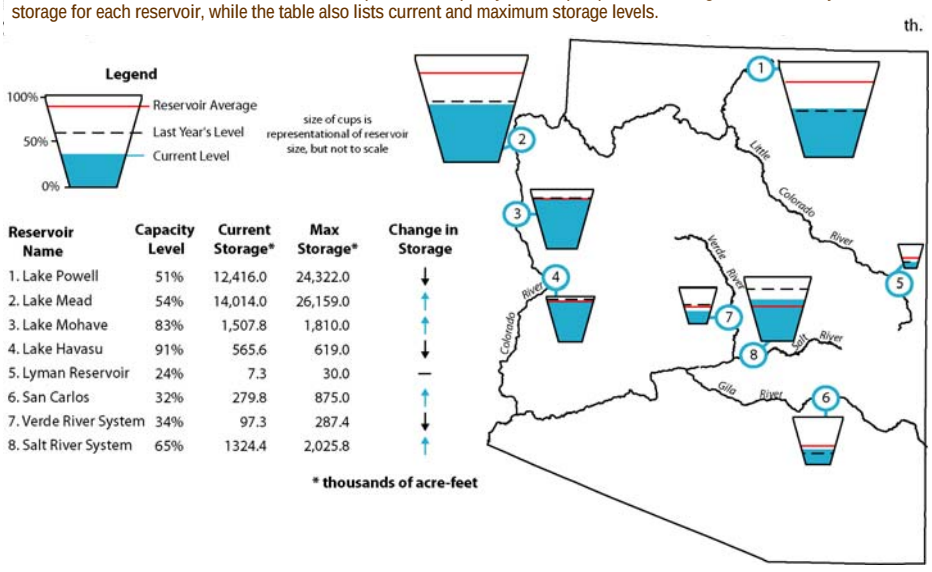
Reservoir Storage

Arizona Reservoir Status

Arizona reservoir levels experienced little change in November relative to the previous month, with the exception of the Verde River System, which dropped by 11 percent. That decrease is most likely due to dry conditions experienced in the region during November. All other reservoirs saw levels either remain unchanged or fluctuate by 1 to 2 percent.

According to the U.S. Bureau of Reclamation, precipitation in the Colorado River Basin was 85 percent of average. Unregulated inflow into Lake Powell was 103 percent of average, due in part to lingering effects from heavy October precipitation. Lake Powell storage is expected to decrease between now and next April. Snowmelt runoff in the spring should then cause levels to rise again. Water Year 2007 is off to a good start with precipitation so far in the Colorado River Basin at more than 200 percent of average. (Data provided by USDA-NRCS, graphic below provided by University of Arizona - CLIMAS (Climate Assessment for the Southwest)

Arizona reservoir levels for November 2006 as a percent of capacity. The map depicts the average level and last year's storage for each reservoir, while the table also lists current and maximum storage levels.



Reservoir Name	Capacity Level	Current Storage*	Max Storage*	Change in Storage
1. Lake Powell	51%	12,416.0	24,322.0	↓
2. Lake Mead	54%	14,014.0	26,159.0	↑
3. Lake Mohave	83%	1,507.8	1,810.0	↑
4. Lake Havasu	91%	565.6	619.0	↓
5. Lyman Reservoir	24%	7.3	30.0	—
6. San Carlos	32%	279.8	875.0	↑
7. Verde River System	34%	97.3	287.4	↓
8. Salt River System	65%	1324.4	2,025.8	↑

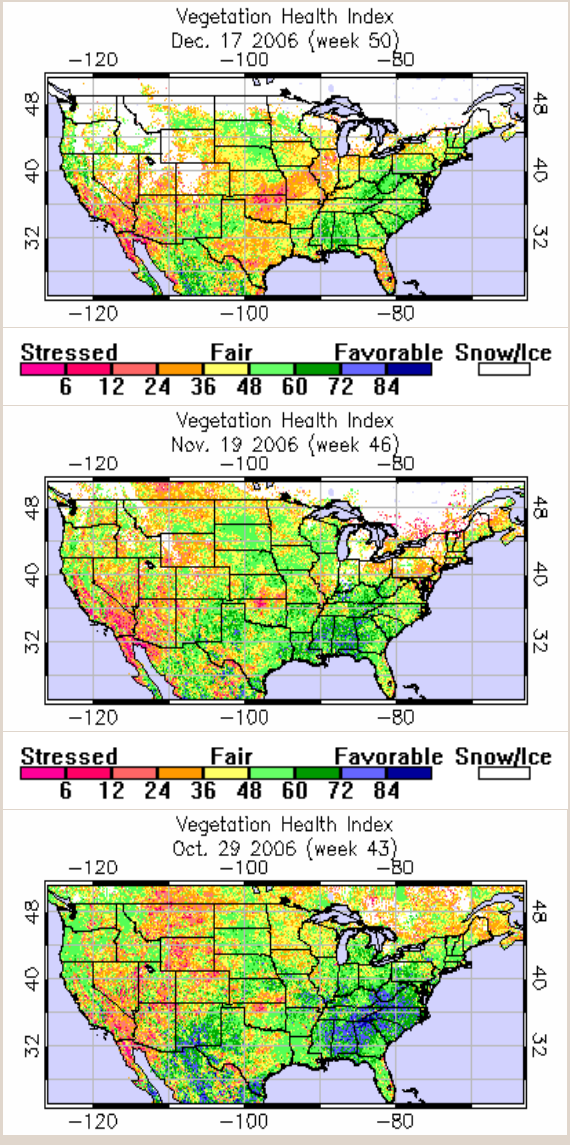
* thousands of acre-feet

The current drought that began in the late 1990s is cause for concern and continues to stress Arizona's resources. Arizona has made huge investments in importing and storing water supplies for the major metropolitan areas, and those investments have substantially buffered urban areas from water shortages during the current drought. Impacts are more significant in the rural parts of the state, where water supplies are more limited and the economy is dependent on weather-sensitive activities, such as grazing, recreation, tourism and forestry.

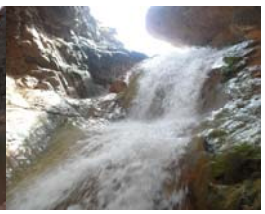
Vegetation Health

Vegetation conditions have improved slightly over the past month, including in northeastern Arizona and in areas along the Mogollon Rim where recent winter storms have passed through. Even with above normal precipitation forecast this winter due to current El Niño conditions, significant improvements in vegetation health may not be observed until spring as most vegetation is relatively inactive through the winter.

Satellite-derived images from the NOAA National Environmental Satellite, Data and Information Service (NESDIS) were taken December 17 (top figure), November 19 (middle) and Oct. 29, 2006 (bottom).

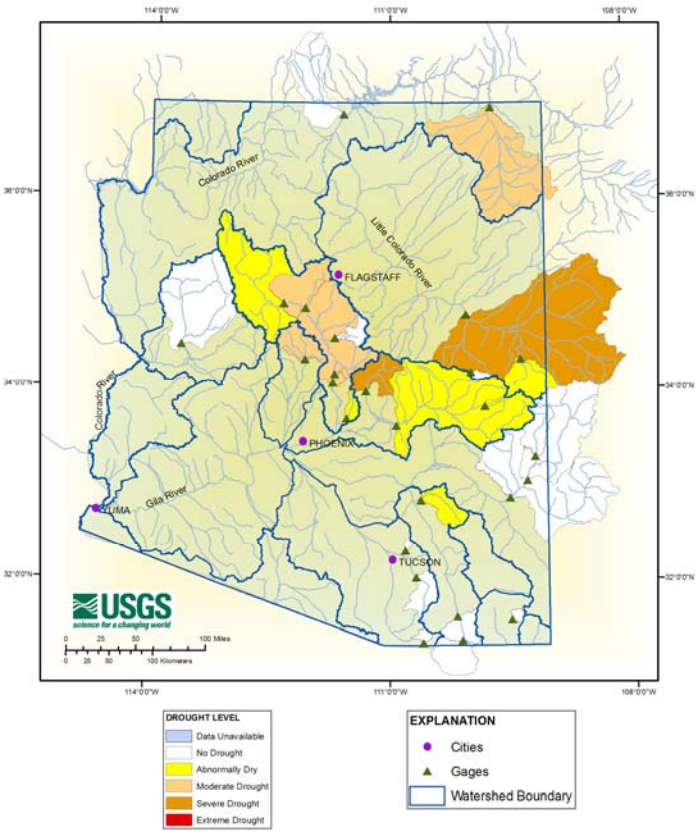


Mountain Streamflow and Precipitation

Drought Levels Based on Monthly Streamflow Discharge

November 2006



November Streamflow

Runoff for major streams in Arizona was below median in November, although the Gila River at San Carlos Lake recorded near median runoff for the month.

November Streamflow Observed (compiled by NRCS from USGS data)

Water body	November Runoff in Acre Feet	% of Median
Salt River near Roosevelt	12,897	79%
Tonto Creek above Gun Ck. nr. Roosevelt	491	41%
Verde River at Horseshoe Dam	13,790	87%
Combined Inflow to Salt River Project (SRP) reservoir system	27,178	82%
Little Colorado River above Lyman Lake	195	65%
Gila River to San Carlos Reservoir	11,350	99%

Mountain Precipitation

November Precipitation -

Climate data from high elevation monitoring stations show that precipitation for November 2006 was 17 percent of average over the Salt River basin, six percent of average over the Verde River basin, and 10 percent of average over the San Francisco-Upper Gila River basin. The Little Colorado River basin received 15 percent of average precipitation in November.

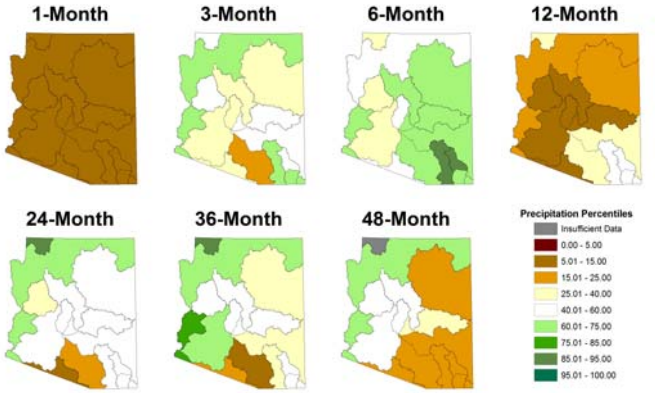

Water Year Precipitation -

Cumulative precipitation for the water year is short with all basins reporting below average precipitation ranging from 56 to 81 percent of average (below).

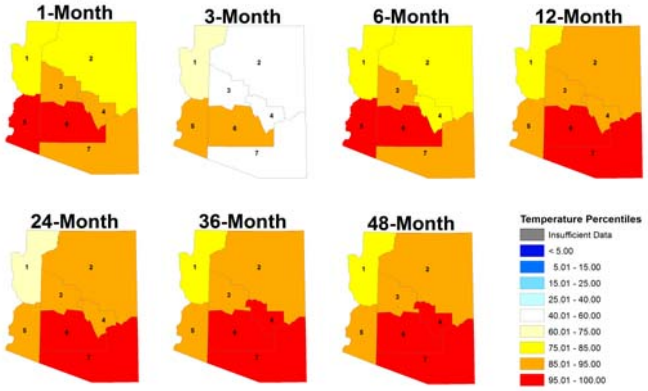
Watershed	Percent (%) of 30-Yr. Average Water Year Precipitation October 1 – November 30
Salt River Basin	71%
Verde River Basin	56%
Little Colorado River Basin	62%
San Francisco-Upper Gila River Basin	81%
Central Mogollon Rim	61%

Temperature and Precipitation


Precipitation Percentiles by Watershed

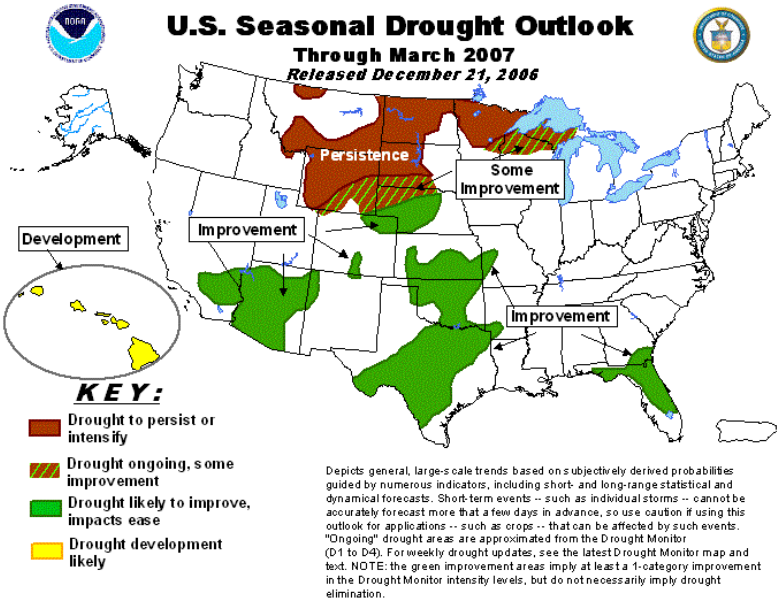


Temperature Percentiles by Climate Division



Time period	Precipitation	Temperature
1-month period	- November brought warm, dry weather to all of Arizona - Precipitation was below the 15th percentile - El Niño generally brings wetter weather beginning in January, and the pattern appears to be strengthening	- Temperatures were above the 83rd percentile - Warmest areas were the southwest and west central divisions
3-month period	- Only the Upper and Lower Colorado and the southeast corner had above-average precipitation	- Temperatures near average for most of the state - Well-above average in the southwest and south central divisions
6-month period	- Precipitation is still above average for the eastern half of the state due to wet monsoon - Near or slightly below average for the western half of the state - Extreme monsoon moisture in the San Pedro and Willcox basins pushed them up above the 88th percentile	- Temperatures above the 78th percentile everywhere in the state for the summer and fall - Above the 96th percentile for the southwest and west central divisions
12-month period	- Only three watersheds in the southeast corner near average for precipitation - Virgin, Upper Gila and Santa Cruz slightly below average - All other watersheds below the 23rd percentile	- The warm November pushed the 12-month temperature percentiles even higher - The southeast and south central divisions are still the hottest, above the 96th percentile - Rest of the state is above the 77th percentile
2-year period	- Colorado and Virgin River watersheds still above the 75th percentile - Most of the state has dropped to near average, except the Santa Cruz and San Simon watersheds, which are still below the 21st percentile	- 24-month temperatures were well above the 85th percentile everywhere except the northwest division, which dropped down to the 72nd percentile - The southeast climate division had its warmest 24-month period since 1895, and climate division six, which includes Maricopa County, moved above the 96th percentile
3-year period	- Upper Gila watershed has dropped below the 40th percentile - Western half of the state remains near or above-average - Eastern half of the state is near or below-average, with the Santa Cruz and San Simon watersheds continuing to be the driest	- Climate division six moved up above the 96th percentile for temperature with the warm November - Entire state remains above the 75th percentile
4-year period	- Precipitation pattern has degraded, with the eastern half of the state well-below average for precipitation - Central watersheds are near average and the Colorado River watersheds are slightly above average	- Temperatures still extremely warm across the entire state

Weather Outlook



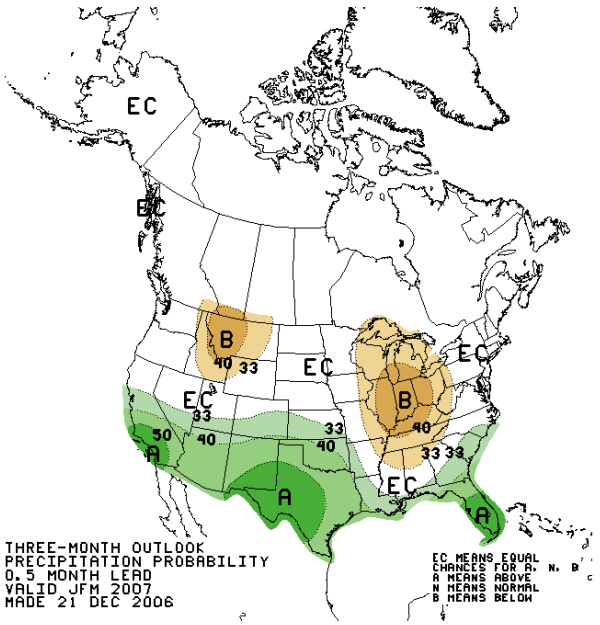
Drought Outlook

The Climate Prediction Center's Seasonal Drought Outlook indicates virtually all of the state will see lessening of the drought impacts through March 2007. The developing El Niño event in the eastern Pacific Ocean is still considered to be a moderate El Niño episode. History shows that in similar situations, precipitation in Arizona showed a tendency to be above average, especially after February 1st.

Also see the most current Southwest Climate Outlook -
www.ispe.arizona.edu/climas/forecasts/swoutlook.html

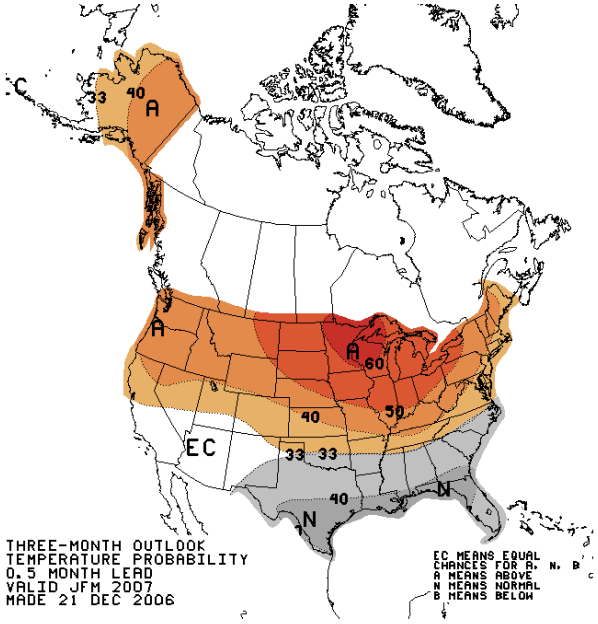
For additional weather information from the Office of the State Climatologist for Arizona -
http://geography.asu.edu/azclimate

January to March Weather Outlooks



Precipitation

Modest confidence precipitation will be above average



Temperature

Equal chances for above average, average, and below-average temperatures across the state

NOAA's CPC Outlooks are 3-category forecasts. As a starting point, the 1971–2000 climate record is divided into 3 categories, each with a 33.3 percent chance of occurring (i.e., equal chances, EC). The forecast indicates the likelihood of one of the extremes—above-average (A) or below-average (B)—with a corresponding adjustment to the other extreme category; the "average" category is preserved at 33.3 likelihood, unless the forecast is very strong. Thus, using the NOAA-CPC temperature (precipitation) outlooks, areas with light brown (green) shading display a 33.3–39.9 percent chance of above-average, a 33.3 percent chance of average, and a 26.7–33.3 percent chance of below-average temperature (precipitation). A shade darker indicates a higher than 40.0 percent chance of above-average, a 33.3 percent chance of average, and a further reduced chance of below-average temperature, and so on. Equal Chances (EC) indicates areas with an equal likelihood of above-average, average, or below-average conditions; it is used by forecasters when the forecast tools do not indicate a strong "signal" that conditions during a given period will be in any one of the three categories.